In the Claims:

1. (Currently Amended) A computer-based method for generating a set of random numbers with statistics represented by a cumulative density function, comprising:

generating a set of uniformly spaced samples between an upper limit and a lower limit;

mapping each one of said set of uniformly spaced samples to a corresponding value on a cumulative density function curve; and

scrambling said set of uniformly spaced samples.

2. (Original) The method of claim 1, wherein said set of uniformly spaced samples are ordered in descending fashion.

3. (Original) The method of claim 2, wherein said set of uniformly spaced samples have an upper limit of 1 and a lower limit of 0.

4. (Original) The method of claim 2, wherein said set of uniformly spaced samples have an upper limit of 100% and a lower limit of 0%.

5. (Original) The method of claim 2, wherein said step of mapping said corresponding value for each of said set of uniformly spaced samples includes looking up said corresponding value, which is stored in ascending order in a look-up table.

6. (Original) The method of claim 5, wherein said step of looking up proceeds without the need for any pre-sorting.

7. (Original) The method of claim 1, further comprising:

companding said uniformly spaced samples in order to increase the representation of low-probability samples.

8. (Original) The method of claim 7, wherein a percentage of events occurring in said low-probability area is determined as compared to a high-probability area.

9. (Original) The method of claim 8, wherein based on the relative percentages between said low-probability area and said high probability area, said samples in said low-probability area are increased by a companding factor, while said samples in said high-probability area are decreased by said companding factor.

10. (Original) The method of claim 9, wherein a probability of said high-probability area is divided by said companding factor.

11. (Currently Amended) A computer-based method of random number generation with a desired cumulative density function, comprising:

generating a set of discrete samples between an upper limit and a lower limit;

uniformly stepping said set of discrete samples in descending order between said upper limit and said lower limit; and

mapping said set of random numbers to a set of values stored in ascending order and having a specified probability density function.

12. (Original) The method of claim 11, further comprising:

scrambling said set of discrete samples between said upper limit and said lower limit.

13. (Original) The method of claim 11, wherein said upper limit is 1 and said lower limit is 0.

14. (Original) The method of claim 11, wherein said upper limit is 100% and said lower limit is 0%.

15. (Original) The method of claim 11, further comprising:

companding said set of discrete samples to provide a more accurate representation of low-probability samples.

16. (Original) The method of claim 15, wherein said step of companding includes, compressing the number of low-probability samples using larger stepping intervals while expanding the number of high-probability samples using smaller stepping intervals.

17. (Currently Amended) A computer-based random number generation system, comprising:

a first component for generating uniformly-spaced numbers, independent of a total number of samples;

a second component for mapping said generated random numbers into a desired distribution through table lookup and scrambling; and

a third component for reducing said total number of samples needed to achieve a given statistical accuracy.

18. (Original) The system of claim 17, wherein said generated random numbers are uniformly spaced between an upper limit of 1 or 100% and a lower limit of 0 or 0%.

19. (Original) The system of claim 17, wherein said third component compresses the number of low probability samples while expanding the number of high-probability samples.

20. (Original) The system of claim 17, wherein said generated random numbers are ordered in descending fashion.